

## Jones's Introduction to Floral Mechanism\*

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There is a scarcity of recent literature available in English upon angiosperm morphology. The best known source-book, which still remains the classic though practically unobtainable, is Coulter and Chamberlain's *Morphology of Angiosperms*. Recent synoptical reviews such as that of Wilson and Just in *Botanical Review* have marked out the more recent controversies and literature. But it is an event to welcome the present text in this field. The book is the outgrowth of the need for a text for "first-year university students" at the University of Glasgow.

The book is divided into two parts. Part One consists of general, often too sketchy, discussions and definitions of such essential considerations in the field as "The Flower," "Floral Construction and Symmetry," "Pollination," "Heredity and Evolution" and many others, extending over 143 pages. This section might advantageously be recast in a future edition, elaborating upon the fundamentals, such as the "Development of Flower" and "Fertilization," and eliminating entirely such discussions as the "Mechanism of Inheritance" and "Hybridization and Improvement of Cultivated Plants"—topics which do not properly come under the major subject of the book.

The second portion of this text, which represents the more important contribution to the field of floral morphology, covers twenty-one selected families of angiosperms familiar to students of courses in "Local Flora." The number of clear and well-reproduced zinc cuts throughout the text will attract the reader at once. These figures, often full page and illustrating plant species little featured in the literature, will prove especially useful in courses in systematic botany. The drawings of *Silene inflata*, *Lychnis dioica*, *Ulex europaeus*, *Anthriscus sylvestris*, *Veronica Chamaedrys*, and *Orchis maculata* are welcome additions to our teaching materials. The figures are often badly crowded and poorly placed on the page. It does not seem to be realized that figures may be cut apart and reoriented though crowded on the original bristolboards by the artist. If this is done before the cuts are made the results on the final pages will amply repay the effort. The legends for the figures are espe-

\* Introduction to Floral Mechanism. S. G. Jones. xi + 274 pp. Chemical Publishing Co. of New York, Inc. 1939. \$4.00.

cially full and useful; often cautionary statements are made to help the student over difficult spots. Figures 70 and 71 are almost theatrical in their instant impression, so strikingly do they portray the floral parts of *Orchis maculata*. It is unfortunate, however, that apparently all the figures lack an indication of the amount of enlargement.

Another feature of the book is the uniform treatment of the species selected for demonstration of floral mechanism. Thus the "habit, inflorescence, flower, calyx, corolla, androecium, gynoecium, pollination, and fruit" characters are given for each species treated.

The chart on page 151 suggests a phylogeny for the plant families treated in this book but such a suggestion is misleading both for the enormous gaps in the series chosen of the total plant families, indicating positions as it does for not one-thirteenth of the world's families, and even for the arrangement of the twenty-one families placed on the chart. Thus it is implied that the Caryophyllaceae are more "advanced" than the Violaceae, a fact ill supported by the morphology of these two families.

There is a one-page skeleton bibliography of sources well known to students of floral morphology, though there are omissions of such fundamental sources as the Coulter and Chamberlain volume hereinbefore mentioned. The three-page glossary is inadequate. Apomixis is too narrowly defined; cotyledon is scarcely defined at all. There is a good index.

Beyond the details mentioned in this review which detract from the book there remains a useful text which will ably serve as a handbook for use in courses in angiosperm morphology and systematics. It is hoped that the author will be able to rearrange the materials, with some elimination of extraneous topics, in an extended future edition that will save for us all the fine features of the present book. Meanwhile, its usefulness will prove its greatest compliment.

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### Methods and Materials for Teaching Science\*

RALPH C. BENEDICT

Throughout the centuries, since men have tried to approach the objective world in a spirit of pure enquiry, there have always been

\* Modern Methods and Materials for Teaching Science. Heiss, E. D., Osbourn, E. S., and Hoffman, C. W. Pp. 351. The Macmillan Co. \$2.50. 1940.